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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Jianbo Lu

Serial No.: 10/735,133 Group Art Unit: 3661

Filed: 12/12/2003 Examiner: Beaulieu, Yonel

For: ROLL STABILITY CONTROL SYSTEM FOR AN AUTOMOTIVE VEHICLE USING COORDINATED CONTROL OF ANTI-ROLL BAR AND BRAKES

Attorney Docket No.: 81093041

I hereby certify that this correspondence is being transmitted via facsimile (571-273-8300) to the United States Patent and Trademark Office, addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

March 30, 2007 (Date of Deposit) Jo Anne Croskey

Jo Anne Croskey (Signature)

REPLY BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

The present Reply Brief is in response to the Examiner's Answer mailed February 1, 2007.

Rollover Sensing System

In the Examiner's Answer beginning on page 4, Appellants wish to direct the Board to consider that the Okamoto does not disclose a rollover sensing system as claimed by the Appellants. The Okamoto reference at column 4, lines 4-18 refers to vehicular roll and roll-stability, not rollover as claimed by the Appellants. The Okamoto reference is merely controlling the rolling motion of the vehicle body relative to the suspension and is not controlling the rolling *over* of the vehicle.

The Examiner asserts that sensing vehicular rollover does not simply entail tires leaving the road surface on which the particular vehicle is driven. The Appellants respectfully agree with the Examiner's assertion, but also assert that while many factors contribute to a vehicle rollover, the defining factor, and the one that is not addressed in Okamoto, is the lift-off of the wheels from the road surface. One skilled in the art would know that the National Highway and Traffic Safety Administration (NHTSA) defines a rollover as having occurred when both inside wheels lift off the ground two inches or more. Therefore, it is respectfully asserted that while many factors contribute to a vehicle rollover, a defining, and therefore necessary, factor is tires leaving the ground. It is also respectfully asserted that because Okamoto does not address this, it becomes clear that the rolling motion Okamoto discloses is not equivalent to rollover claimed in the present invention.

The Okamoto reference does not teach or disclose generating a roll attitude signal indicative of an impending rollover as claimed in the present invention. The Appellants' independent claim 1 requires generating a roll attitude signal indicative of an impending rollover. Independent claims 8 and 12 require determining a roll attitude signal indicative of an impending rollover. Independent claim 15 requires determining a roll angle estimate to provide a predetermined tire force. The Examiner points to Okamoto's teaching of vehicle rolling magnitude based at least on steering angle as support for a roll attitude signal.

It is respectfully asserted that Okamoto does not teach or disclose generating a roll attitude signal indicative of an impending rollover as claimed in claims 1, 8 and 12 and cannot possibly teach determining a roll angle estimate to provide a predetermined tire force as claimed in claim 15 when it fails to address either roll. The determination of a roll attitude signal and a roll angle estimate claimed in the present invention should not be considered equivalent to the steering angle and vehicle speed sensing taught in Okamoto.

Roll angle, Attitude and Slip Angle

The Examiner asserts that the Okamoto reference senses vehicular roll and therefore it supports roll angle and attitude as claimed by Appellants. The Examiner also asserts that the present invention does not claim slip angle. Appellants respectfully disagree with these assertions. The Okamoto reference senses roll, whether it is designated as vehicular or body is a matter of labels. The real difference lies in the distinction between roll and rollover as the terms apply to Okamoto and the present invention respectively. Roll motion, as addressed by Okamoto, is directed to steering, accelerating, or braking of a vehicle and this is the motion Okamoto's teachings are limited to. Rollover, as addressed by the present invention, occurs when large roll angles or lateral slip angles are experienced, these result from forces separate and distinct from steering, accelerating, or braking.

Okamoto discloses the use of steering wheel angle and vehicle speed in order to stiffen suspension, but does not teach or disclose sensing roll angle, attitude and slip angle, and therefore cannot possibly teach or disclose generating, or determining, an impending rollover, or using a roll angle estimate in order to do so, as claimed by Appellants.

The explanation of the rollover attitude signal claimed by Appellants is found in the specification at paragraphs [0043]-[0060], wherein the rollover detection is described as including roll angle, attitude and slip angle sensing used in the determination of the rollover attitude signal. In summary, a rollover detector is coupled to various sensors

and generates a roll angle and lateral slip angle. The rollover detector identifies wheel lift and roll angle and provides these to a rollover feedback control computation that generates a moment of the vehicle. Knowing the roll moment allows it to be counteracted by the system according to the present invention.

It is respectfully asserted that Okamoto discloses a suspension control system that monitors steering wheel angle and vehicle speed and does not determine roll angle or slip angle. Okamoto does not detect a rollover or an impending rollover. And Okamoto does not teach or disclose preventing a rollover. It is respectfully asserted that the Okamoto reference is merely controlling the rolling of the vehicle body relative to the suspension and is not controlling, or preventing, the rolling *over* of the vehicle as claimed in the present invention.

Appellants therefore believe that each of the claims is allowable and directs the Board to reverse the Examiner's finding of unpatentability. Appellants therefore look forward to the Board's decision.

Respectfully submitted,

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